

shindaiwa

Shindaiwa Inc.
11975 SW Herman Road
Tualatin, Oregon 97062
Telephone 503-692-3070
Fax 503-692-6696
www.shindaiwa.com

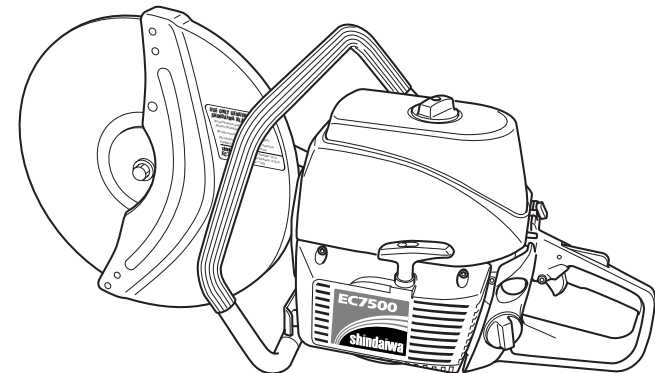
Shindaiwa Kogyo Co., Ltd.
6-2-11 Ozuka-Nishi
Asaminami-Ku, Hiroshima
731-3167, Japan
Telephone 81-82-849-2220
Fax 81-82-849-2481

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Part Number 68002-94310

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SHINDAIWA OWNER'S AND OPERATOR'S MANUAL

EC7500/EC7600 ENGINE CUTOFF SAW (EPA VERSION)



WARNING!

- Read this manual and familiarize yourself with its contents.
- This unit is designed primarily for cutting construction materials and metal according to the type of cutting wheel installed.
- To minimize the risk of injury to yourself and others, always wear hearing protection, a dustproof mask, goggles and a helmet when operating this unit.
- Keep this manual handy so you can refer to it when required.

shindaiwa

Part Number 68002-94310 Rev. 12/02

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Shindaiwa Inc. reserves the right to make changes to products without prior notice, and without obligation to make alterations to units previously manufactured.

Attention Statements

Throughout this manual are special “attention statements”.



WARNING!

A statement preceded by the word “WARNING” contains information that should be acted upon to prevent serious injury.

CAUTION!

A statement preceded by the word “CAUTION” contains information that should be acted upon to prevent unit damage.

IMPORTANT!

A statement preceded by the word “IMPORTANT” is one that possesses special significance.

NOTE:

A statement preceded by the word “NOTE” contains information that is handy to know and may make your job easier.

Labels and Symbols

The following are symbols that appear on the unit.



Read and follow the operator’s manual. Failure to do so could result in serious injury.



Always wear hearing protection, a dustproof mask, goggles and a helmet when operating this unit.



Fuel Filler



Choke

The following symbols are meant to provide important reminders.



Be aware of kickback!

Kickback may force the cutting-off wheel up and back toward the operator with a lightning-fast reaction. Kickback can occur whenever the upper-half of the cutting-off wheel touches an object while operating the unit.



Be aware of thrown objects!



WARNING!

Using this cut-off saw, or any other high-speed power tool, can be hazardous. As a result, you must employ special safety precautions to reduce the risk of injury or fire.

MAINTENANCE, REPLACEMENT OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEMS MAY BE PERFORMED BY ANY REPAIR ESTABLISHMENT OR INDIVIDUAL; HOWEVER, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY SHINDAIWA KOGYO CO., LTD. THE USE OF PARTS THAT ARE NOT EQUIVALENT IN PERFORMANCE AND DURABILITY TO AUTHORIZED PARTS MAY IMPAIR THE EFFECTIVENESS OF THE EMISSION CONTROL SYSTEM AND MAY HAVE A BEARING ON THE OUTCOME OF A WARRANTY CLAIM.

If other than the parts authorized by Shindaiwa Kogyo Co., Ltd. are used for maintenance replacements or for the repair of components affecting emission control, you should assure yourself that such parts are warranted by their manufacturer to be equivalent to the parts authorized by Shindaiwa Kogyo Co., Ltd. in their performance and durability.

OBTAINING WARRANTY SERVICE

All repairs qualifying under this limited warranty must be performed by a dealer authorized by Shindaiwa Kogyo Co., Ltd.

If any emission-related part is found defective during the warranty period, it is your responsibility to present the product to an authorized Shindaiwa dealer. Bring your sales receipts showing the date of purchase for this engine. The dealer authorized by Shindaiwa Kogyo Co., Ltd. will perform the necessary repairs or adjustments within a reasonable amount of time and furnish you with a copy of the repair order. All parts and accessories replaced under this warranty become the property of Shindaiwa Kogyo Co., Ltd.

To locate an authorized Shindaiwa dealer near you, contact your Shindaiwa Distributor. For the name and telephone number of the Shindaiwa Distributor in your area, please call Shindaiwa Inc. at (503) 692-3070 between the hours of 8:00 AM and 5:00 PM Pacific Standard Time.

THIS WARRANTY IS ADMINISTERED BY

Shindaiwa Inc.
11975 S.W. Herman Rd.
Tualatin OR. 97062
(503) 692-3070

PARTS COVERED

Listed below are the parts covered by the Federal Emission Design and Defect Warranty. Some parts listed below may require scheduled maintenance and are warranted up to the first scheduled replacement of that part. The warranted parts include:

1. Carburetor Internal Components
 - Valve Assembly-throttle, Jet, Metering Diaphragm
2. Ignition System Components
 - Ignition Coil
 - Flywheel Rotor

The emission control system for your particular Shindaiwa engine may also include certain related hoses and connectors.

LIMITATIONS

The Federal Emission Design and Defect Warranty shall not cover any of the following:

- (a) conditions resulting from tampering, misuse, improper adjustment (unless they were made by the dealer or service center authorized by Shindaiwa Kogyo Co., Ltd. during a warranty repair), alteration, accident, failure to use the recommended fuel and oil, or not performing required maintenance services,
- (b) the replacement parts used for required maintenance services,
- (c) consequential parts used for required maintenance services,
- (d) diagnosis and inspection fees that do not result in eligible warranty service being performed, and
- (e) any non-authorized replacement part, or malfunction of authorized parts due to use of non-authorized parts.

MAINTENANCE AND REPAIR REQUIREMENTS

You are responsible for the proper use and maintenance of the engine. You should keep all receipts and maintenance records covering the performance of regular maintenance in the event questions arise. These receipts and maintenance records should be transferred to each subsequent owner of the engine. Shindaiwa Kogyo Co., Ltd. reserves the right to deny warranty coverage if the owner has not properly maintained the engine. Shindaiwa Kogyo Co., Ltd. will not deny warranty repairs, however, solely because of the lack of repair, maintenance or failure to keep maintenance records.

Safety Precautions



WARNING!

Before Operation

- Children and people who do not understand this manual must not use this unit.
- Never allow other people or animals to be near the unit when starting or operating.
- Never touch a rotating cut-off wheel.
- Operate the unit only in a well ventilated area.
- Never operate the unit in a closed area such as a room, warehouse or tunnel. Running the unit in a closed area may cause serious illness or even death due to exhaust gas.
- Never allow any people or animals near exhaust gas.
- Never inhale exhaust gas.
- Never make unauthorized modifications or alterations to any of the components of the unit, and never operate the unit without the wheel guard or muffler.
- This unit is designed for one-man operation and must be operated by only one person.
- Never operate the unit when you are tired or under influence of any substance that could impair vision, dexterity or judgement.
- When operating the unit, always wear snug-fitting clothing, safety gloves, safety non-skid footwear, hearing protection, a dust-proof mask, a helmet and goggles. Never wear floppy clothing, shorts, sandals or accessories that could become entangled.
- To minimize the risk of sparks igniting clothing while operating the unit, wear clothing made of leather, wool, tightly-woven cotton, or cotton treated with flame-retardant.
- Never use any cut-off wheel that is not recommended in this manual.
- Do not start or operate the unit unless you have a clear work area and secure footing.
- Never smoke or use fire near the unit or its fuel.
- Since the muffler and exhaust gas become very hot, make sure there are no flammable substances near the unit.
- Never run the unit if you discover a fuel leak.
- A first-time operator should obtain practical instruction from a dealer or an experienced user before using the unit.
- Make sure all the components are in place and the bolts are securely fastened.
- Make sure the cut-off wheel is securely fastened and is not damaged. Never use a cut-off wheel with cracks, distortion, or one that is unbalanced.
- Make sure the belt tension is properly adjusted and the wheel guard, belt guard and clutch cover are securely assembled.
- Always inspect the front handle, rear handle and wheel guard before use, and never use the unit if the parts are damaged.

Safety Precautions (continued)



WARNING!

Before Operation (continued)

- Before cutting into a material, familiarize yourself with the risks associated with dust, fumes, or mists that may be generated during operation. **Make sure you provide adequate protection against harmful emissions.** A high-performance respirator and/or water attachment may be required.

- Do not use the cut-off saw to cut or disturb asbestos or products containing or wrapped in asbestos. If you believe you might be cutting asbestos, contact your supervisor.

Fueling the Unit

- Mixing fuel and engine fueling must be done outside, and where no other combustibles are nearby.

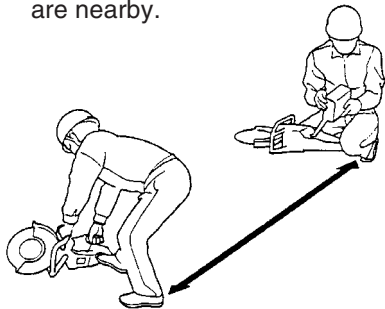


Figure 1. Start the engine at least 10 feet (3 meters) from a fueling location.

- Open the fuel cap slowly to release any possible build-up of pressure.
- Never refuel when the unit is hot. Allow to cool before refueling.
- Never fuel when the engine is running.
- After fueling, wipe all spilled fuel. Cutting metal may cause sparks from the cut-off wheel and may ignite spilled fuel which could result in serious injury.

Starting The Engine

- Start the engine at least 10 feet (3m) away from a fueling location.
- When starting the engine, make sure the cut-off wheel does not touch any object or ground. As soon as the engine starts, the cut-off wheel may begin to rotate.

- Start the engine according to the instructions in this manual. Start the engine on a firm, stable surface. Make sure the area is clear of bystanders. **Starting the engine must be done by only one person without any assistance.**
- The cut-off wheel should not rotate at engine idle. If it does, reduce idle speed.
- Never leave the unit running unattended.

The following statement only applies to United States and its territories

Shindaiwa Kogyo Co., Ltd.

Federal Emission Design And Defect Limited Warranty Utility And Lawn And Garden Engines

Shindaiwa Kogyo Co., Ltd. warrants to the initial purchaser and each subsequent owner, that this utility equipment engine (herein engine) is designed, built and equipped to conform at the time of initial sale, to all applicable regulations of the U.S. Environmental Protection Agency (EPA), and that the engine is free of defects in materials and workmanship that would cause this engine to fail to conform with EPA regulations during its warranty period. This emission warranty is applicable in all States, except the State of California.

For parts listed under PARTS COVERED, the dealer authorized by Shindaiwa Kogyo Co., Ltd. will, at no cost to you, make the necessary diagnosis, repair, or replacement of any defective emission-related component to ensure that the engine complies with applicable U.S. EPA regulations.

MANUFACTURERS WARRANTY COVERAGE

When sold within the U.S., this engine's emission control system is warranted for a period of two (2) years from the date this product is first delivered to the original retail purchaser.

OWNER'S WARRANTY RESPONSIBILITIES

As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Shindaiwa Kogyo Co., Ltd. recommends that you retain all receipts covering maintenance on your engine, but Shindaiwa Kogyo Co., Ltd. cannot deny a warranty claim solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

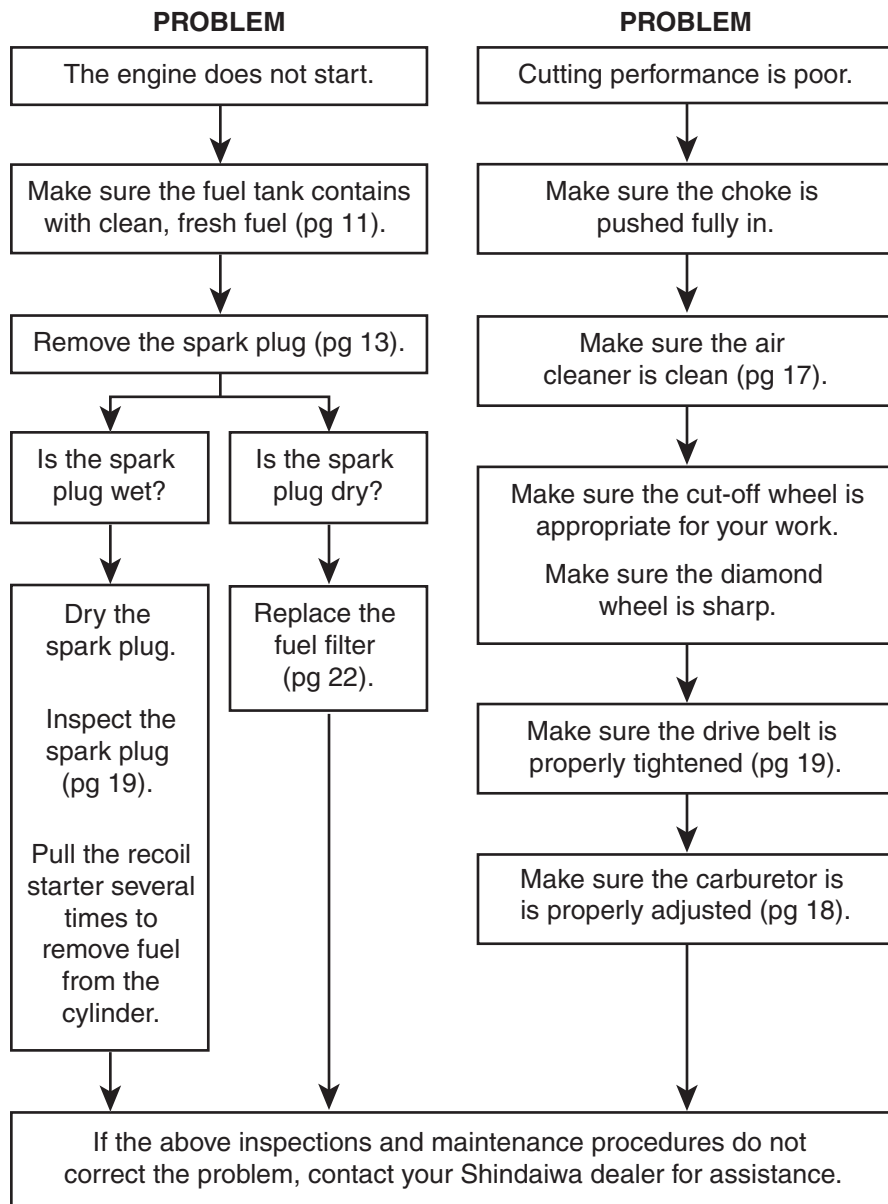
As the engine owner, you should however be aware that Shindaiwa Kogyo Co., Ltd. may deny your warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your engine to the nearest dealer authorized by Shindaiwa Kogyo Co., Ltd. when a problem exists.

If your Shindaiwa Dealer is unable to answer questions regarding your warranty rights and responsibilities, you should then contact your Shindaiwa Distributor.

For the name and telephone number of the Shindaiwa Distributor in your area, please call Shindaiwa Inc. at (503) 692-3070 between the hours of 8:00 AM and 5:00 PM Pacific Standard Time.

Troubleshooting



Safety Precautions (continued)



WARNING!

Kickback

- Kickback may force the cut-off wheel up and back toward the operator lightning-fast.
- Kickback can occur whenever the upper half of the cut-off wheel touches an object. Never cut an object using the upper half of the cut-off wheel.

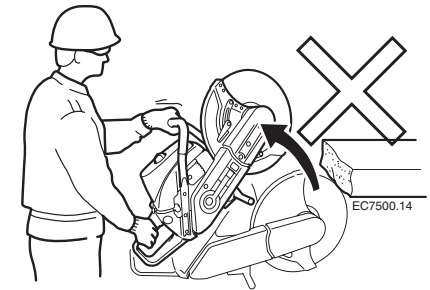


Figure 2. Always be aware of, and prepared for, kickback.

Operation

- The unit must be held firmly with both hands, one hand on the rear handle, the other on the front handle. Never hold onto any other part of the unit.
- Never impact or apply pressure to the sides of the cut-off wheel for any reason.
- Maintain firm and stable footing during operation. Do not over-reach.
- When working in a group, make sure operators are least 30 feet (10 meters) away from each other.
- If you drop the unit or strike it against a hard surface, stop the engine immediately and inspect for damage. If you discover damage, have it repaired before you return the unit to service.
- Check the fuel filler cap regularly during operation to make sure it remains securely tightened.

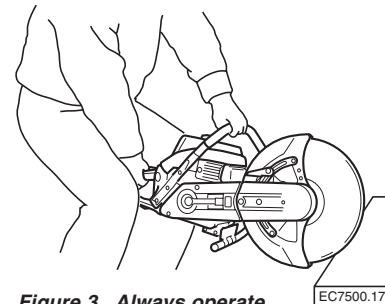


Figure 3. Always operate below chest level.

- This unit must be operated below chest level. Operating above chest level may result in serious injury.
- When cutting vertically, the unit should be positioned horizontally or with the wheel side tilted slightly down. When cutting horizontally, the recoil starter-side should face up.

Safety Precautions (continued)



WARNING!

Operation (continued)

- If you discover fuel leakage, immediately stop the engine.
- Cutting may cause sparks from the cut-off wheel. Make sure there is no flammable substances nearby.
- Never cut live electrical wires. The shock you might receive could be very serious.
- Do not touch hot parts such as the muffler or cylinder. You could burn yourself severely.
- The cut-off wheel gets hot while cutting. Never touch the wheel immediately after cutting. You could burn yourself severely.
- While the engine is running, never touch high voltage parts such as the spark plug cap and plug cord.

Stopping The Engine

- The cut-off wheel coasts for a while after the engine is stopped. Keep hold of the unit firmly until the wheel stops completely and then place it on the ground.

Inspection and Maintenance

- Before performing any inspection, maintenance, repair or cleaning of the unit, make sure engine and cut-off wheel are completely stopped and cooled down.
- Inspection and maintenance operations should be done in a well ventilated location and where there are no combustibles nearby.
- When replacing parts, always use Shindaiwa genuine parts. Using non-Shindaiwa genuine parts may result in serious injury.
- Inspection and maintenance operations not mentioned in this manual should be performed by an authorized Shindaiwa dealer.

Transport and Storage

- When carrying the unit, make sure engine and cut-off wheel are completely stopped.
- Carry the unit with the front handle and with cut-off wheel facing rearward.
- When storing the unit, make sure the cut-off wheel is removed and the unit is placed on a secure, dry place.
- Keep the unit away from children.
- When storing the unit for more than a few days, empty the fuel tank completely.
- Store gasoline and mixed fuel in a closed, dry place and where combustibles are not nearby.

Long Term Storage

Whenever the unit will not be used for 30 days or longer, use the following procedures to prepare it for storage:

- Clean external parts thoroughly.
- Drain all the fuel from the carburetor and the fuel tank.

IMPORTANT!

All stored fuels should be stabilized with a fuel stabilizer such as StaBil™.

To remove the remaining fuel from the fuel lines and carburetor and with the fuel drained from the fuel tank...

1. Prime the primer bulb until no more fuel passes through.
2. Start the engine and idle until it stops running.
3. Repeat Steps 1 and 2 until the engine will no longer start.

CAUTION!

Gasoline stored in the carburetor for extended periods can cause hard starting and could also lead to increased service and maintenance costs.

- Remove the spark plug and pour about 1/4 ounce of 2-cycle mixing oil into the cylinder through the spark plug hole. Slowly pull the recoil starter 2 or 3 times so oil will evenly coat the interior of the engine. Reinstall the spark plug.
- Before storing the unit, repair or replace any worn or damaged parts.
- Remove the air cleaner element from the carburetor and clean it as described on page 17, then reassemble the element.
- Clean the exterior of the unit thoroughly.
- Store the unit in a clean, dust-free area.

Sharpening a Diamond Cut-off Wheel

While running the engine at low speed, make about 10 passes at cutting a concrete block or a soft brick. Keep the block watered while sharpening.

Checking the Fuel Filter



WARNING!

KEEP AWAY FROM FIRE OR EXCESS HEAT!

1. Remove the fuel filler cap.
2. Take the filter out from the fuel opening by using a hooked wire. If the filter is hard and clogged with debris, replace it with a new one. See Figure 30.

CAUTION!

Make sure the fuel line is not pierced by the hooked wire. The fuel line can be easily damaged.

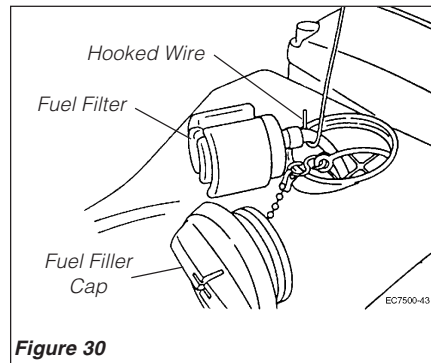


Figure 30

3. Put the filter back into the fuel tank. Make sure the fuel tube is not bent and the filter stays at the bottom of the tank.
4. Put the fuel filler cap back and tighten it securely.

Lubricating the Clutch Bearing

Grease the clutch bearing every 20 hours of operation. Squeezing a grease gun three times will deliver an appropriate amount of grease. See Figure 31.

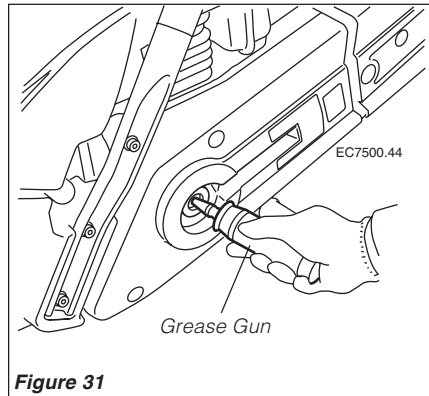


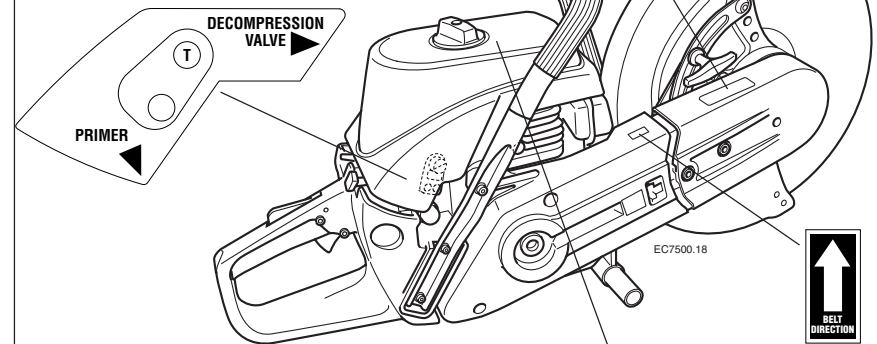
Figure 31

Safety and Operation Information Labels

IMPORTANT!

Make sure all safety and operation information labels are undamaged and readable. Immediately replace damaged or missing safety and operation information labels, which are available from your authorized Shindaiwa dealer.

TURN THE KNOB ALL THE WAY TO FREE OR LOCK THE GUARD



USE ONLY GENUINE SHINDAIWA BLADES
No performance guarantee without using genuine Shindaiwa blades
No-load revolution speed: 4220 min⁻¹ (rpm)
Use reinforced abrasive blades with maximum usable perimeter velocity of: 15,749 ft/min. (4800 m/min.)
shindaiwa EC7500 Max. blade diameter: 1" (25.4mm) Max. blade thickness: 0.157" (4.0mm) Standard arbor: 0.86" (22mm), others available: see owner's manual

USE ONLY GENUINE SHINDAIWA BLADES
No performance guarantee without using genuine Shindaiwa blades
No-load revolution speed: 3880 min⁻¹ (rpm)
Use reinforced abrasive blades with maximum usable perimeter velocity of: 15,749 ft/min. (4800 m/min.)
shindaiwa EC7600 Max. blade diameter: 1" (25.4mm) Max. blade thickness: 0.177" (4.5mm) Standard arbor: 0.86" (22mm), others available: see owner's manual

shindaiwa ENGINE START PROCEDURES

1. Press PRIMER 2-3 times, or until fuel is in the bulb.
2. COOL ENGINE: Pull the CHECK valve is pressed IN.
3. WARM ENGINE: Pull the CHECK knob once, then press it back IN.
4. Press the DECOMPRESSION valve IN.
5. Place OFF/ON switch to "ON".
6. Pull the recoil starter until you hear first firing.
7. Make sure the CHECK knob is pressed IN.
8. Pull the recoil starter.
9. Once the engine starts, pull back the CHECK knob until you hear the CHECK knob will automatically go back IN.

TIGHTEN THE KNOB SECURELY!

IMPORTANT!

- Clean and inspect the filter at least once a day.
- Make sure the filter screw is tight.
- Use only 2-cycle mixed fuel.

GASOLINE TO FUEL OIL RATIO—50:1

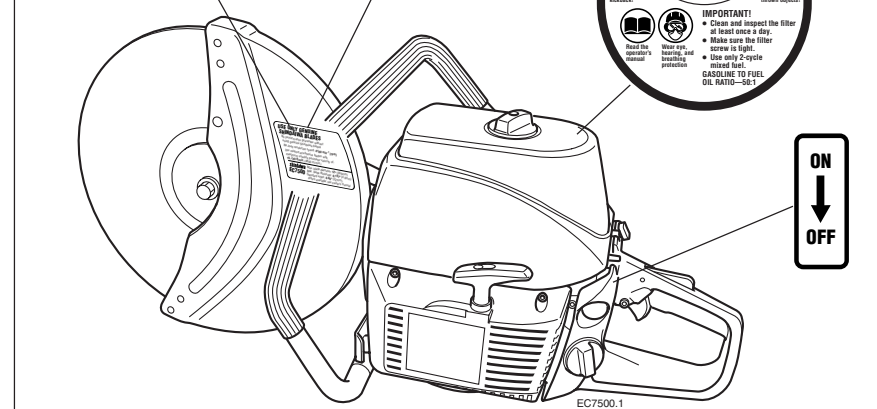


Figure 4

Unit Description

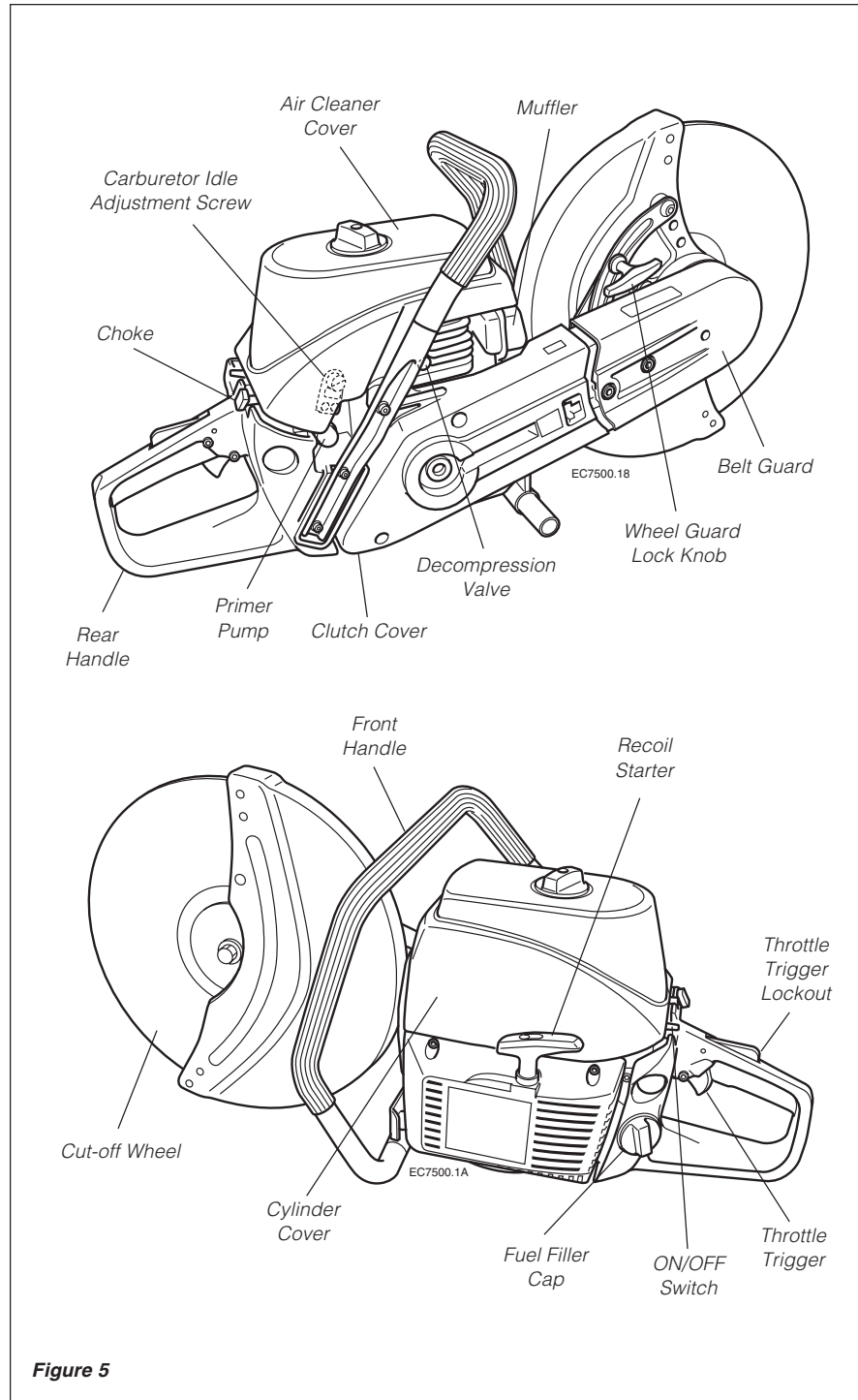


Figure 5

Replacing the Cut-off Wheel

1. Make sure the ignition switch is off and the engine is stopped.
2. Insert a 6mm hex wrench into the hole in the belt guard to prevent the drive shaft from turning. See Figure 29.

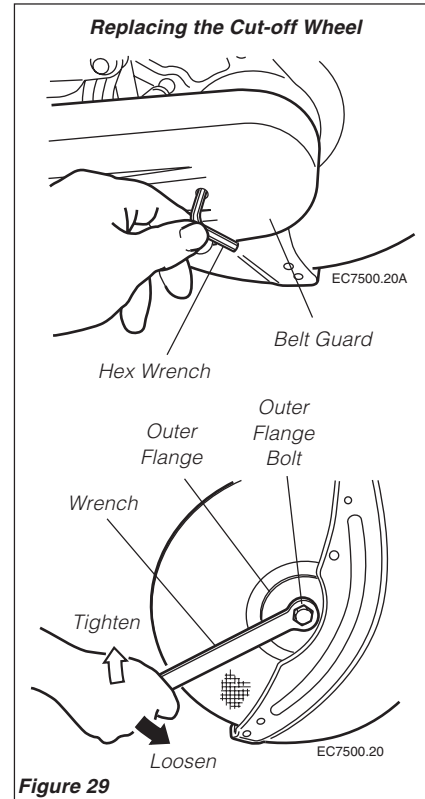


Figure 29

3. Loosen the outer flange bolt with the wrench and remove the bolt and outer flange.
4. Before mounting a cut-off wheel, determine its arbor diameter. If necessary, remove the snap ring from the arbor, install the correct collar, then re-install the snap ring.



WARNING!

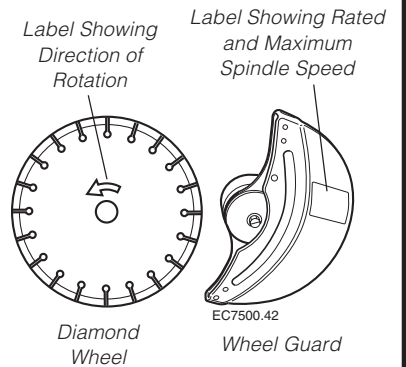
Using the wrong size collar may lead to failure of the wheel or the unit and could result in serious injury.

5. Remove the old wheel and install the new one. Make sure the inner bore is properly set onto the collar.
6. Replace the outer flange and bolt, then holding the hex wrench in the hole of the belt guard, tighten the bolt with the wrench.
7. Make sure the cut-off wheel is securely fastened and does not wobble.



WARNING!

Make sure the replacement cut-off wheel rpm rating is greater than the speed indicated on the wheel guard label.



CAUTION!

Make sure the rotating direction of wheel corresponds to the one indicated on the wheel guard. Make sure there is no dust around the outer flange.

Replacing the Drive Belt

1. Loosen the tension screw. Loosen the two bolts on the belt guard and remove the belt guard by sliding it to the right. See Figure 26.
2. Loosen the two bolts in the clutch cover and remove the clutch cover.
3. Replace the old belt with a new one.

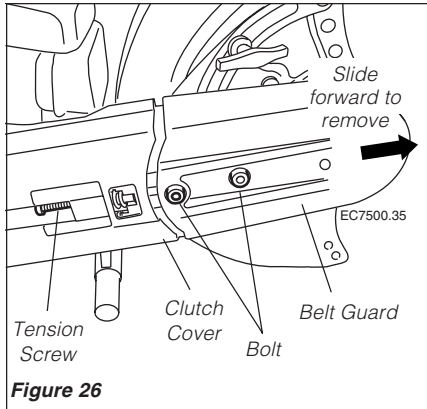


Figure 26

4. Reassemble the clutch cover and the belt guard and adjust the belt tension. Figure 27 illustrates the components.

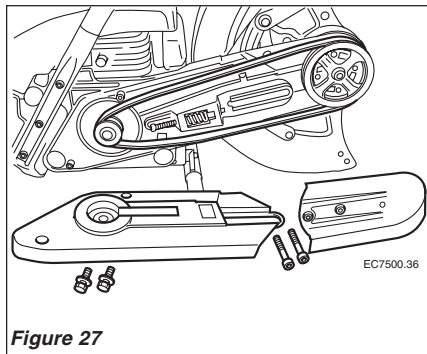


Figure 27

Checking the Cut-off Wheel



WARNING!

Never use a wheel which has breakage, cracks or distortion. The wheel may break while operating and may result in serious injury.

Always check the condition of the cut-off wheel before starting the engine. Make sure there are no breaks, cracks or warps. See Figure 28.

A faulty wheel must be replaced with a new one!

The tips of a diamond wheel should be sharpened regularly to maintain cutting efficiency. See page 22.

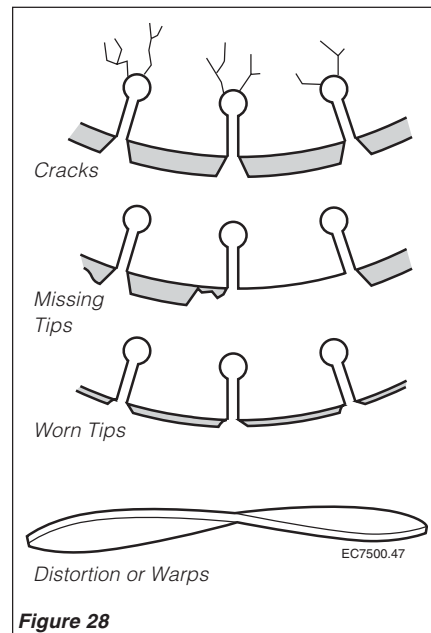


Figure 28

Technical Specifications

Engine Type 2-Cycle, vertical-cylinder, air-cooled

Displacement 4.5 cu. in. (73.5cc)*

Bore x Stroke .. 2 x 1.4 in. (51 x 36mm)

Max. Power Output** .. 4.5 hp (3.3kW)

Recommended Engine Idling Speed 2,500 min⁻¹ (rpm)**

Recommended Maximum Engine Speed 10,550 min⁻¹ (rpm)**

Maximum Cutting Depth, EC7500
 Abrasive Wheel
 12 in. (305mm) 4 in. (102mm)
 Diamond Wheel
 12.5 in. (320mm) 4.4 in. (109mm)

Maximum Cutting Depth, EC7600
 Abrasive Wheel
 13.9 in. (355mm) 5 in. (127mm)
 Diamond Wheel
 14.1 in. (360mm) 5.1 in. (129mm)

Rated Spindle Speed†
 EC7500 3,800 min⁻¹ (rpm)
 EC7600 3,320 min⁻¹ (rpm)

Maximum Spindle Speed†
 EC7500 4,220 min⁻¹ (rpm)
 EC7600 3,680 min⁻¹ (rpm)

Maximum Peripheral Wheel Speed†
 EC7500 13,300 ft/min. (67.5m/sec)
 EC7600 13,500 ft/min. (68.0m/sec)

Speed Reduction Ratio
 EC7500 2.50:1
 EC7600 2.87:1

Type of Fuel Unleaded gasoline plus 2-cycle engine oil (50:1)

Fuel Tank Capacity 800ml

Carburetor Type Diaphragm

Ignition System Electronic

Spark Plug Champion, CJ6Y

Engine Starting/Stopping Toggle switch, recoil starter

Power Transmission Automatic centrifugal clutch, V-ribbed belt

Anti-Vibration System Unified handles with 7-point support

Safety Devices Throttle lock-out, wheel guard

Dry Weight (without wheel)
 EC7500 22 lbs (10.0kg)
 EC7600 23 lbs (10.5kg)

Dimensions (L x W x H)
 EC7500 29.1 x 8.6 x 14.7 in. (740 x 220 x 375mm)
 EC7600 30.1 x 8.6 x 15.3 in. (765 x 220 x 390mm)

Sound Pressure Level†
 EC7500 101 dB (A)
 EC7600 101 dB (A)

Sound Power Level††
 EC7500 108 dB (A)
 EC7600 111 dB (A)

Vibration Level§
 Front handle (idle/rated spindle)
 EC7500 6.96/5.48m/sec²
 EC7600 10.09/10.49m/sec²
 Rear handle (idle/rated spindle)
 EC7500 8.61/14.60m/sec²
 EC7600 8.93/13.70m/sec²

Recommended Cut-off Wheels
 EC7500, abrasive 12 in. (305mm) dia
 EC7500, diamond .. 12.5 in. (320mm) dia
 EC7600, abrasive .. 13.9 in. (355mm) dia
 EC7600, diamond .. 14.2 in. (360mm) dia

Arbor Sizes 0.78" (20mm), 0.86" (22mm), and 1.0" (25.4mm)

* Measured in accordance with EN ISO 11201: 1995.

** Measured in accordance with ISO 7293: 1983.

† Measured with 305mm wheel (EC7500) and 355mm wheel (EC7600).

†† Measured in accordance with EN ISO 3744: 1995.

§ Measured in accordance with EN 28662-1: 1992.

Assembly

Prior to Assembly

Before assembling, make sure you have all the components required for a complete unit. This unit consists of the items shown in Figure 6.

Carefully inspect the engine unit for damaged or loosen bolts. If you find any damage or missing items, check with your dealer.

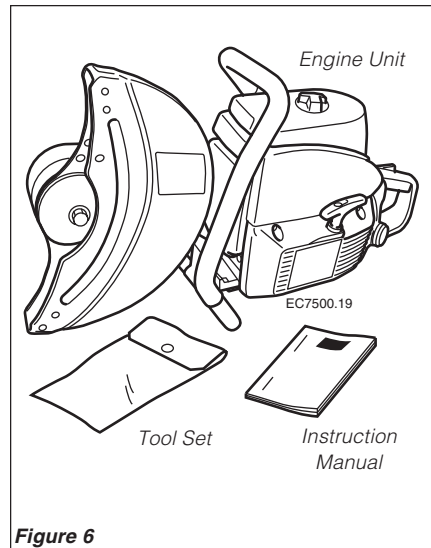


Figure 6

Mounting the Cut-off Wheel

1. Select a cut-off wheel for your work according to the following chart. Refer to the wheel manufacturer's manual for additional information.

Recommended Cut-off Wheels

Inner bore: 0.78" (20mm),
0.86" (22mm), 1.0" (25.4mm)

Wheels for EC7500

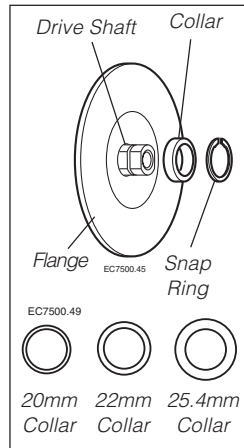
Abrasive: 305mm outer diameter
Diamond: 320mm outer diameter

Wheels for EC7600

Abrasive: 355mm outer diameter
Diamond: 360mm outer diameter

IMPORTANT!

This unit is equipped with a 0.86" (22mm) wheel collar. Wheel adapters for 20mm and 25.4mm cut-off wheels are located in the tool set. Before mounting a wheel, determine its arbor diameter. If it is necessary to replace the collar, remove the snap ring on the arbor, install the correct size arbor collar, and then replace the snap ring.



WARNING!

Use of the incorrect collar size may lead to wheel failure and unit failure that could result in serious injury.

2. Make sure the ON-OFF switch is Off and the engine is stopped.
3. Insert a hex wrench into the hole in the belt guard to prevent the arbor from turning. See Figure 7.

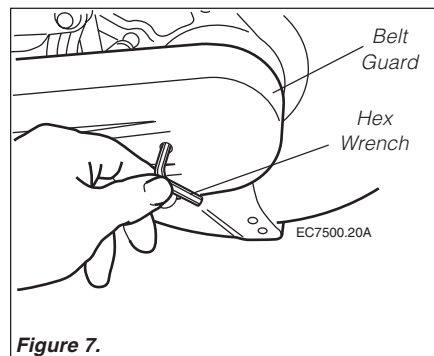


Figure 7.

High and Low Speed Needle

The high and low speed needle is fixed and cannot be adjusted.

Spark Plug Maintenance

If the engine becomes hard to start or if idle speed is unstable, inspect the spark plug according to the following procedures.

1. Remove the spark plug. Refer to the procedures on page 13, *If the Engine Does Not Start...*
2. Clean the electrode with a wire brush. If necessary, adjust the electrode gap. The gap should be 0.024" (0.6mm). See Figure 24.

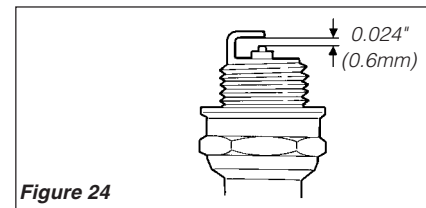


Figure 24

Cleaning Cylinder Fins

WARNING!

Before cleaning cylinder fins, make sure the engine is cold.

Dust and debris may accumulate between the cylinder fins and can lead to engine overheating. In order to maintain efficient service, cylinder fins should be cleaned once every month.

Checking the Drive Belt

The transmission belt tends to loosen and wear after a period of operation and should be checked and adjusted regularly according the following procedures. If the belt is worn, torn, cracked, scratched or otherwise damaged, replace it with a new one immediately.

Adjusting Belt Tension (Figure 25)

1. Loosen the two bolts in the belt guard by one turn.
2. Turn the tension screw so the washer aligns with the mark on the clutch cover.
3. Tighten the two bolts in the belt guard.

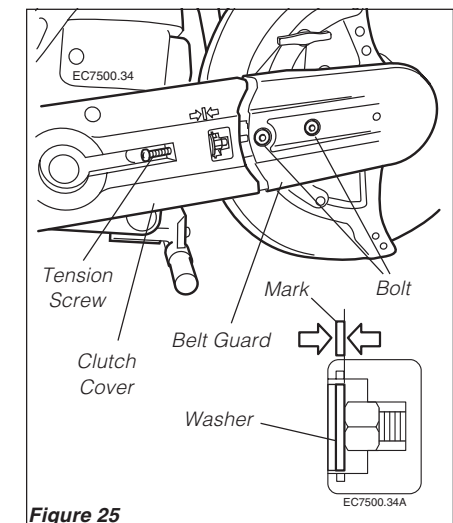


Figure 25

Adjusting the Carburetor

It is not necessary to adjust the carburetor when the unit is new. Adjust the carburetor only when you are sure it is necessary due to differences in working conditions such as atmospheric pressure or temperature, or change in unit conditions after more than 10 hours of use.

If you are unfamiliar with carburetor adjustment techniques, ask your dealer for advice.

Adjust the carburetor in accordance with the following procedures.

WARNING!

When adjusting the carburetor, keep bystanders well away, and make sure the cut-off wheel is clear of any interference because the wheel may rotate during carburetor adjustment.

1. Prior to adjusting, clean the air filter as described on the previous page and then run the engine for a few of minutes at idle speed to warm up the engine.

Adjusting Idle Speed

To adjust idle speed, turn the Idle Adjust Screw with a screwdriver. See Figure 22. Turn clockwise to increase idle speed. Adjust idle speed so the cut-off wheel does not rotate at idle.

Recommended idle speed:
2,200–2,600 min⁻¹ (rpm)

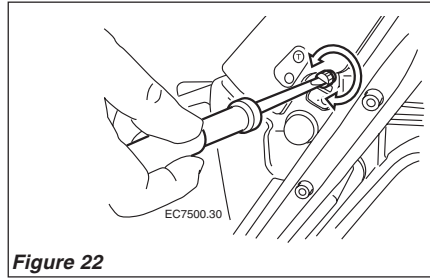


Figure 22

4. Loosen bolt with the wrench and remove bolt and outer flange. See Figure 8.

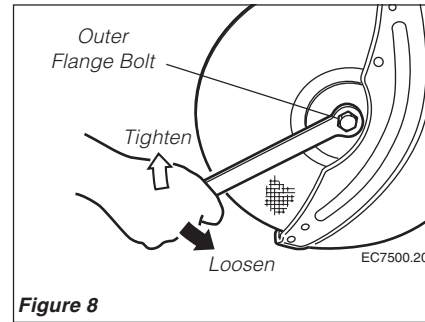


Figure 8

5. Place cut-off wheel so the inner bore is properly set onto the collar.

Filling the Fuel Tank

WARNING!

- When filling the fuel tank, make sure the engine is stopped and cool.
- Filling the fuel tank or mixing fuel and oil must be done in a place where there is no risk of fire.

CAUTION!

Some gasolines contain alcohol as an oxygenate! Oxygenated fuels may cause increased operating temperatures. Under certain conditions, alcohol-based fuels may also reduce the lubricating qualities of some mixing oils. Never use any fuel containing more than 10% alcohol by volume! Generic oils and some outboard motor oils may not be intended for use in high-performance air-cooled 2-cycle engines and should never be used in your Shindaiwa engine.

CAUTION!

This engine is designed to operate on a 50:1 mixture consisting of unleaded gasoline and premium 2-cycle mixing oil only.

WARNING!

Using an inappropriate cut-off wheel may cause the wheel to break and may result in serious injury.

6. Replace outer flange and bolt, and then, while holding hex wrench in the hole in belt guard, tighten the bolt with wrench.
7. Make sure the cut-off wheel is securely fastened. Spin the wheel to make sure it does not wobble.

- Use only fresh, clean unleaded gasoline with a pump octane of 87 or higher.

- Mix all fuel with a premium 2-cycle air-cooled mixing oil at a 50:1 gasoline/oil ratio.

Examples of 50:1 mixing quantities

- 1 gallon gasoline to 2.6 oz. mixing oil.
- 5 liters gasoline to 100ml mixing oil.

IMPORTANT!

Mix only enough fuel for your immediate needs. If fuel must be stored longer than 30 days and oil with fuel stabilizer is not used, it should first be treated with a fuel stabilizer such as StaBil™.

1. Use a container to pre-mix gasoline and oil. Pour oil in first, then add gasoline.
2. Remove the fuel filler cap by turning counterclockwise.
3. Fill the tank with the mixed fuel, then tighten the fuel filler cap securely.
4. Any spilled fuel must be wiped up completely. Make sure the unit has no fuel leaks.

Starting the Engine When the Engine is Cold

WARNING!

- Before starting the engine, place the unit on a clean, level surface. Make sure you have good secure footing and always keep a firm grip on the unit.
- Move at least 10 feet (3m) away from the fueling site before starting the engine.
- Make sure the cut-off wheel is well clear of obstacles. The cut-off wheel may rotate when the engine starts.
- Keep bystanders well away.
- Never start the engine without a cut-off wheel installed.

1. Turn the on-off switch **On**.
2. Depress the primer pump a few times repeatedly until the primer pump is almost filled with fuel. See Figure 9.

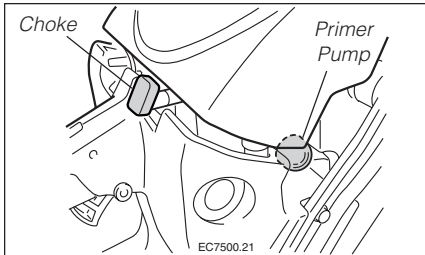


Figure 9

3. Push the decompression valve **In**.
4. Pull the choke all the way out (choke closed). The throttle will automatically be set to fast idle. See Figure 9.
5. Place the unit on firm ground.
6. Secure the unit by placing your right foot inside the rear handle and your left hand on the front handle. See Figure 10.

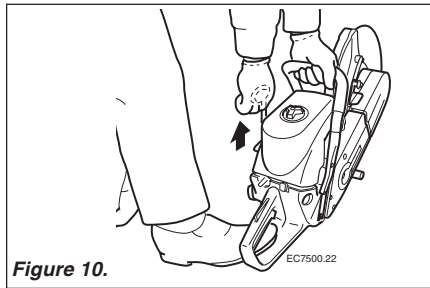


Figure 10.

7. Grip the recoil starter handle with your right hand, pull the starter cord slowly until you feel the starter engage, then...
8. ...start the engine by pulling the starter cord upward rapidly.

CAUTION!

- The recoil starter can be damaged by abuse.
- Never pull the starter cord to its full length.
- Always engage the starter before cranking the engine.
- Always rewind the starter cord slowly. Do not just let go of the cord.

9. When the engine fires, push the choke in to its original position (choke open).
10. If the engine does not continue to run, pull the recoil again.
11. As the engine starts, clear excess fuel from the combustion chamber by revving the engine several times.

IMPORTANT!

The throttle trigger can not be moved without first depressing the lockout lever.

Operating the throttle will automatically disengage the fast idle setting.

12. Let the engine run at idle speed for 2-3 minutes to warm up.

Cleaning the Air Cleaner

WARNING!

Inspection and maintenance should be done in a well ventilated place and where there is no risk of fire.

Dust in the air cleaner will affect engine life. The air filter must be cleaned every time you start operating.

Clean the air filter once a day and replace the filter every 20 hours of operation according to the following procedures. See Figure 21.

1. Pull the choke lever out so that dust will not enter the carburetor.
2. Unscrew the knob on the cleaner cover and remove the cleaner cover and filter.
3. Remove the pre-filter from the filter.
4. clean the pre-filter with soap and water and let dry.
5. If compressed air is available, blow air from inside the filter to remove dust. If compressed air is not available, remove dust by gently tapping the element on a hard surface.

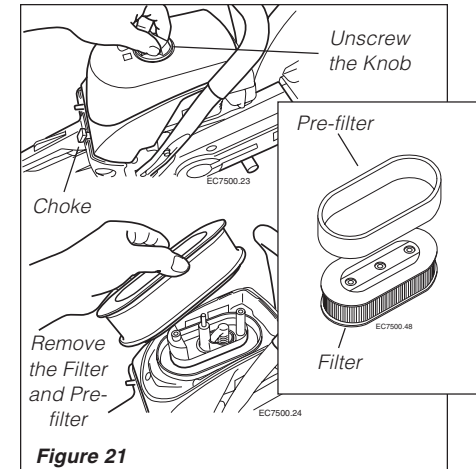


Figure 21

IMPORTANT!

When cleaning the filter, the filter housing and the inside of the cleaner cover should also be cleaned.

6. Replace the pre-filter onto the filter and reassemble them into the filter housing. Make sure both filter bolts are securely tightened.
7. Reinstall the cleaner cover and make sure the knob is securely tightened.

Reversing cutting head for flush cutting operations (cont.)

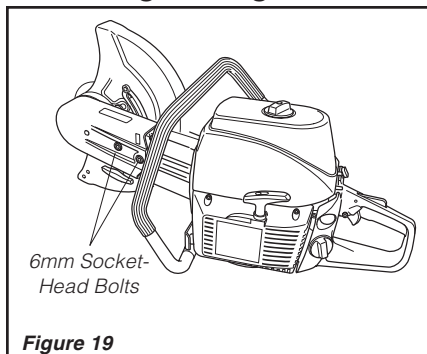


Figure 19

5. Making sure that the drive belt is fully engaged in the drive pulleys, slide the belt cover on and install the two socket-head bolts into the left-hand side of the mounting surface only until the bolts bottom on the belt cover. See Figure 19.

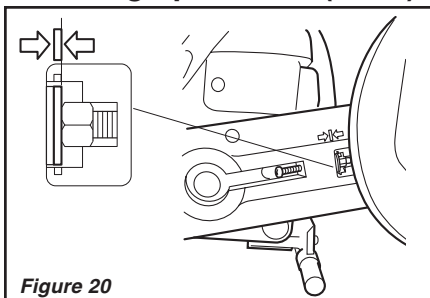


Figure 20

6. Adjust the tension screw until the tension indicator is in the middle of the scale. See Figure 20.
7. Tighten the two mounting bolts securely.
8. Reconnect the main water line, adjust and retighten water nozzles (if equipped with a water kit).
9. Reinstall the cutting wheel.

Inspection and Maintenance

MAINTENANCE, REPLACEMENT, OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEM MAY BE PERFORMED BY ANY REPAIR ESTABLISHMENT OR INDIVIDUAL. HOWEVER, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY SHIN-DAIWA KOGYO, LTD. AND USE OF PARTS THAT ARE NOT EQUIVALENT IN PERFORMANCE AND DURABILITY TO AUTHORIZED PARTS MAY IMPAIR THE EFFECTIVENESS OF THE EMISSION CONTROL SYSTEM AND MAY HAVE A BEARING ON THE OUTCOME OF THE WARRANTY CLAIM.

Inspection and Maintenance Requirements

Item	What to Do	Daily	Weekly	Monthly	As Req'd
Air Cleaner	Clean	✓			
Cut-off Wheel	Check & Sharpen	✓			
Bolts/Screws	Check & Retighten	✓			
Fuel Cap	Check Leakage	✓			
Fuel Tank	Check Leakage	✓			
Wheel Guard	Check Function	✓			
Clutch Bearing	Grease		✓		
Belt	Check and Adjust		✓		
Spark Plug	Check and Clean			✓	
Cylinder Fins	Clean			✓	
Fuel Filter	Clean			✓	
Carburetor	Adjust				✓

Starting a Warm Engine

1. Turn the on-off switch **On**.



WARNING!

The cut-off wheel must not rotate at idle speed. If it rotates, reduce idle speed by adjusting the idle adjust screw.

2. Push the decompression valve in.
3. Pull the choke all the way out and push it back to the original position (choke open). The throttle is automatically set at a fast idle position.
4. Follow Steps 5 through 12, *Starting a Cold Engine* (previous page).

If the Engine Doesn't Start

If the engine fails to start, repeat the appropriate starting procedure for a cold or warm engine.



WARNING!

Keep well away from fire!

If the engine still does not start,

1. Pull the choke all way out.
2. Unscrew the knob on the cleaner cover and remove the cleaner cover. See Figure 11.

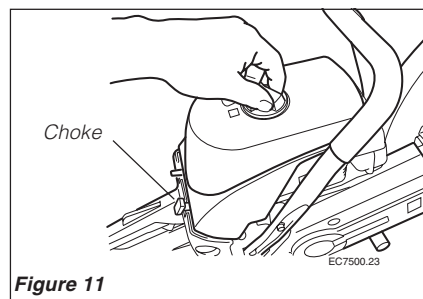


Figure 11

3. Unscrew the two bolts securing the filter element, remove the filter element. See Figure 12.

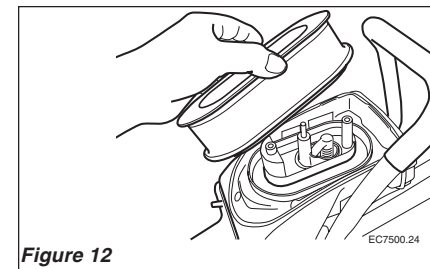


Figure 12

4. Remove the plug cap and disconnect the spark plug by using the plug wrench. See Figure 13. Check to see if the spark plug electrode is fuel-soaked.

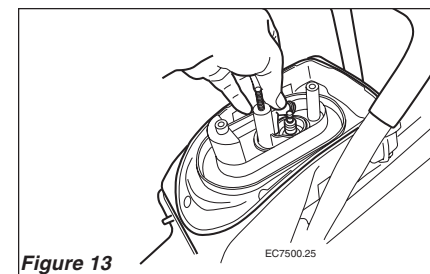


Figure 13

5. If the spark plug is wet, dry it completely. Clear excess fuel from the combustion chamber by cranking the engine several times with the spark plug is removed.
6. Reassemble the spark plug, plug cap, filter and cleaner cover.
7. Follow the appropriate starting procedure described above.
8. If the spark plug is dry, fuel is likely not being supplied to the combustion chamber properly.

■ Check the fuel filter and carburetor. Refer to the Inspection and Maintenance Section.

■ Refer to the Troubleshooting Section, page 24.

If the engine still does not start, contact your Shindaiwa dealer.

Stopping the Engine

Let the engine run at idle speed for 2-3 minutes, then turn the on-off switch **Off**.

Operation

WARNING!

- Never permit bystanders or animals near the unit when starting or operating the unit.
- **Be aware of kickback!** Kickback may force the cut-off wheel up and back toward the operator lightning-fast. Kickback can occur whenever the upper half of the cut-off wheel touches an object. **Never cut an object using the upper-half of the cut-off wheel.**
- When operating, always wear snug-fitting clothing, safety gloves, safety non-skid footwear, hearing protection, a dust-proof mask, a helmet and goggles.

WARNING!

When using the cut-off saw, the wheel guard must be securely in position as a protection against a broken wheel. If the wheel guard is not in place, a broken wheel could project fragments at high speed and strike you or others, possibly resulting in serious injury.

Wet or Dry Operation

This unit is designed to be operated for either dry or wet cutting. A water dust-suppression kit is available for this unit but is not supplied in the unit packaging. Please refer to the assembly and operating instructions supplied with the water dust-suppression kit.

Adjusting Wheel Guard Angle

Adjust the position of the wheel guard so that fragments will not fly toward you if the wheel fractures. To reposition the wheel guard, loosen the lock knob (counterclockwise). When the wheel guard is positioned correctly, securely tighten the lock knob. See Figure 14.

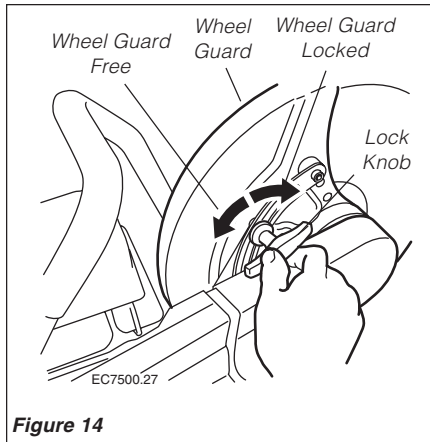


Figure 14

Cutting

This unit performs most efficiently when cutting between 8,500 and 9,500 min⁻¹ (rpm). While running the engine at full throttle, apply slight pressure to the cut-off wheel against an object so that engine speed stays at 8,500–9,500 min⁻¹ (rpm). Too much pressure to the wheel will lower wheel speed, reducing cutting efficiency considerably.

1. Make sure you have a clear work area and secure footing.
2. Position the cut-off wheel vertically to an object. Start cutting at a low speed and then gradually accelerate the speed.

Reversing cutting head for flush cutting operations

WARNING!

Before performing any work on the cut-off saw, make sure the engine is stopped and the ignition switch is OFF.

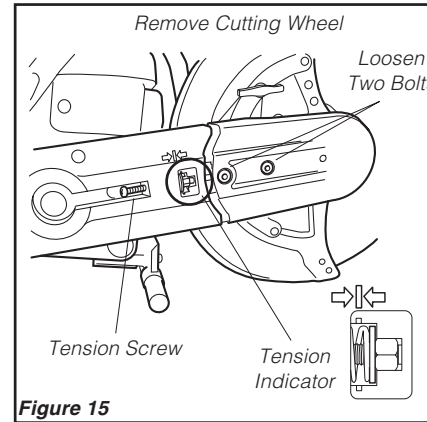


Figure 15

NOTE:

For units equipped with a water kit, loosen the (2) water nozzles and disconnect the main water line from the double nozzle.

1. Remove the cutting wheel (See pages 10 and 11). Using a Phillips screwdriver, loosen the tension screw until the tension indicator is all the way to the front of the scale. See Figure 15.

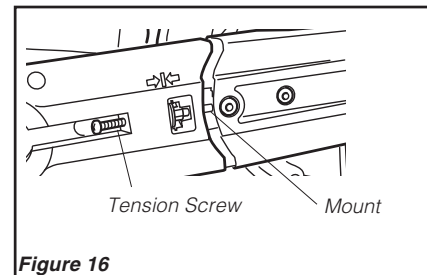


Figure 16

2. Back off tension screw another 4-5 turns so that adequate clearance is achieved where the tension screw contacts the mount when the mount is turned over. See Figure 16.

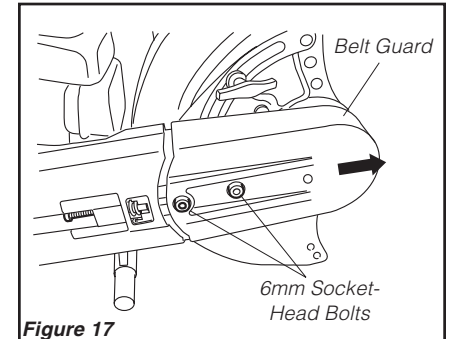


Figure 17

3. Using a 6mm hex wrench, remove the two belt guard bolts and slide the belt guard forward to remove. See Figure 17.

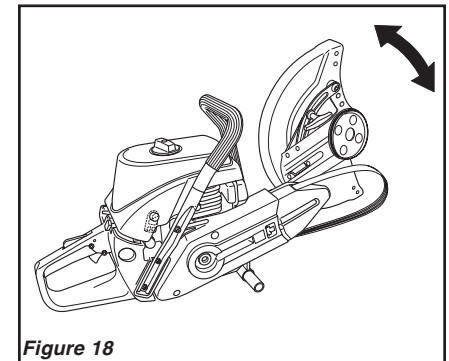


Figure 18

4. Remove the blade mount from the mounting surface and rotate the blade mount 180°, then remount to the right hand side of mounting surface. See Figure 18.